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Type D Personality and Psychological Distress: A Correlational Study among Coronary Heart Disease Patients

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Abstract: *The study aimed to explore the relationship between type D personality and psychological distress in coronary heart disease patients. It was proposed that people having type D personality are more likely to have psychological distress, which ultimately leads to coronary heart disease. One hundred fifty heart disease patients were included in the test of the hypotheses. There were 90 men and 60 women aged 45 years and above from different heart disease hospitals took part in the study. For data collection, along with the consent form and demographics sheet, Two scales were used i-e., A 14-item Type D Personality Scale was used to measure the Type D Personality, and a 10-item Psychological Distress Scale was used to assess the Psychological Distress among the selected sample. Statistical analysis showed that there is a significant relationship between type D personality and psychological distress among coronary heart patients. Furthermore, results also revealed that there were no significant differences found among men and women developing heart diseases in relation to type D personality and psychological distress. Heart diseases are increasing day by day, and they are reported as the "leading cause of death" all over the world. The current research focused on the association of type D personality and psychological distress among heart patients to highlight that both of these variables prevailed among the chosen sample.*

Introduction

Currently, heart diseases are reported as the "leading cause of death" all over the world (Gaidai et al., 2023). It could be very challenging while living with a health impairment condition like cardiovascular disease (CVD) due to challenges in daily life and also coping adaptations important in dealing with functional disability, physical discomfort, and cardiovascular risk reduction (Murphy et al., 2020). In 2000, Denollet proposed a new personality construct, which he named Type D personality, which can also be called a distressed personality. An increased tendency to experience "emotional and interpersonal difficulties" was observed in people with coronary artery disease (CAD)/CVDs. There are two stable personality constructs of type D personality named negative affectivity and social inhibition, both of which are associated with traits like neuroticism and introversion. (Denollet, 2005) defined Negative affectivity as a "condition of experiencing negative emotions over time" and Social inhibition as a "condition of inhibiting social interactions" (Perros et al., 2024).

Patients with CAD have a prognosis of an unwholesome outcome of Type D personality, and the following example shows this as follows: risks of "mortality and nonfatal myocardial infarction" have been increased in patients with type D personality (Mols & Denollet, 2010). The link of Type D personality has been observed with both fatal and nonfatal (noncardiac chest pain) events (Campbell et al., 2017).

There is an increase in developing psychiatric and medical disorders for people with type D personalities (Denollet, 2000). Poor health status is followed by Type D personality in patients with fixed

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cardiovascular diseases, from which heart failure is more common (Pelle et al., 2008). In addition to this, Type D personality plays a crucial role in worsening the quality of life, mental health, treatment outcomes and adherence with medication in CAD patients (Giuliani et al., 2024; Perros et al., 2024).

In several studies, it is shown that people with Type D personality have higher mortality rates and higher heart failure as compared to people with other types of personality (Pelle et al., 2010). Various adverse behavioral and biological traits associated with Type D personality are the outcome of a predisposition towards progression of heart failure, which is followed by worse patient outcomes (Denollet et al., 2011). High blood pressure and heart responses in people with type D personalities are the result of any stressful event, which in turn results in the development of heart diseases (Brotman et al., 2007). Many unfavorable health results are linked with Type D personality. Recently, in many years, there have been many evidences that link mental factors with unfavorable predictions in patients suffering from cardiovascular diseases (Brotman et al., 2007). Researchers have explored the link between Type D personality and various cognitive problems, which mainly include posttraumatic stress disorder, anxiety, and depression. For general psychological distress, it is reported that "Type D personality has been outlined as a dangerous factor that affects mental as well as physical health status (Tuman, 2022; Mols & Denollet, 2010).

Psychological distress was defined as an "emotional suffering condition with having symptoms of depression like lost interest, sadness, and hopelessness and anxiety including restlessness and feeling tense" (Belay et al., 2021). In the year 2020, Globally, heart diseases are expected to be the leading death cause with psychological stress being imputable with a noticeable amount of this risk (Rosengren et al., 2004). Many researches have been carried out to explore the association between various psychological problems, which mostly include depression, anxiety, and posttraumatic stress disorder with Type D personality particularly people with MI have depression, and it is most common in cases with CVD's (Thombs et al., 2008).

The studies conducted by Xu et al. (2024) and Lin et al. (2017) revealed the positive relationship between type D personality and increased depressive and anxiety symptoms among heart patients. In accordance with traditional risk factors, psychological factors have been shown as predictors of harmful heart disease outcomes. Research on CAD patients and heart failure patients has shown an association with the severity of the disease, social support, and psychological factors, which include the symptoms of mental distress (Stafford et al., 2007).

Objectives
- To study the relationship between type D personality and psychological distress among heart patients.
- To identify the role of demographic variables of type D personality and psychological distress.

Hypotheses
- There will be a significant relationship between type D personality and psychological distress.
- There will be gender differences among type D personality and psychological distress.

Material and Method
A correlational research study design was used in the current study. The sample consisted of heart patients from different hospitals in Rawalpindi and Islamabad. Government hospitals were visited for data collection. The sample size was 150, and it was calculated by using G-power software. Sample Technique Purposive sampling technique was used in the study.

Inclusion Criteria
1. A heterogeneous group of cardiac patients was included.
2. Both males and females were included.

Exclusion Criteria

1. People who are not willing to participate will be excluded.
2. People with any physical disability, like weak eyesight or hearing, were excluded.

Measures

The following research measures were used to carry out this study.

Type D Personality Scale (DS14) (Gul & Bhatti, 2009)

This scale was developed by Denollet (2005), and then Gul and Bhatti (2009) translated into Urdu. This scale was used to assess the Type D personality variable in the study sample. It is comprised of two subscales, i-e., negative affectivity (NA) and social inhibition (SI), including seven items each. The respondents rated their responses on a 5-point Likert scale ranging from 0: false,1: rather false, 2: neutral, 3: rather true, and 4: true. To classify the individual as a Type D personality, a cut-off score of 10 or more on both scales is used. The Cronbach's alpha of DS14; NA is 0.86, and SI is 0.87, which shows that the DS14 is a reliable scale (Denollet, 2005; Gul & Bhatti, 2009).

Kessler Psychological Distress Scale (K10)

In this study, the Kessler Psychological Distress Scale (K10) was used to examine the level of Psychological Distress among heart patients. The scale was originally developed by R.C. Kessler in 1992 and translated into Urdu language by Ghafoor, Sitwat, and Kausar (2016). It consists of 10 questions on the Likert scale, and participants can rate from (None of the time (score 1) to All of the time (score 5). Its scores are from a minimum of 10 to a maximum of 50. According to the Collaborative Health and Well-Being Survey, "scores ranged from 0.42 to 0.74," which shows that it is moderately reliable.

Procedure

The sample consisted of heart patients from different cardiology departments of random hospitals in Islamabad and Rawalpindi. Before conducting research, allowance was taken from the supremacies. Permission was taken from the authors to use their scales in the respective study. Urdu version of both scales was used. Participants were mentored to present the study purpose. They were instructed to fill out the questionnaires carefully and avoid skipping any of the items in the questionnaires. Each participant took almost 5-7 minutes to complete the questionnaires. Those who were having difficulty in solving the problem were completely explained the scales for their assistance.

Taking consent from the agreement of individuals respecting the privacy of participants in the study and elaborating briefly about the topic and the research study design. Safety and protection from any physical harm were provided to the participants. Also, participants had the right to skip whenever they wanted.

Results

The results are based on the adequacy of the scales of the sample under study. Descriptive Statistics (mean, median, and percentages) were calculated by analyzing the average scores of participants on main demographic variables. Mean, standard deviation (SD), Cronbach's alpha reliabilities, skewness, and kurtosis were estimated to be the approximate measure of excellence of the instruments used in the current study. The correlation was used to explore the relationship between type D personality and psychological distress. Mean differences and Standard deviation (t-test) were calculated to assess the role of gender.

Table 1

Reliability analysis of type D personality and psychological distress scales (N=150)

Scales	Items	M	Mdn	α	Range Potential	Actual	Skew	Kurt
DS14	14	34.91	37.00	.86	0-28	5-52	- .63	- .21
KPD	10	37.00	27.00	.86	10-50	1-39	-.74	- 0.99

Note: M=Mean, Mdn=Median, α =Cronbach's alpha reliability, ds14= type D personality scale, KPD= Kessler psychological distress scale, Skew= skewness, Kurt= kurtosis

Table 1 indicates the mean, median, range potential, actual values, skewness, and kurtosis of the scales used in the current study. The table displays the reliability of the instruments DS14 (α=.86) and KPD (α=.86), which demonstrated that instruments have appropriate reliability in this study. Moreover, it was concluded that all instruments were internally consistent and constant in constructing measures.

Table 2
Correlation analysis of type D personality and Kessler distress scale (N=150)

Variables	N	1	2
DS14	150	–	–
KPD	150	.71**	–

Note: DS14=Type D personality scale, KPD=Kessler psychological distress scale

This table shows the correlation between type D personality and psychological distress. It indicates that there is a positive relationship between type D personality and psychological distress.

Table 3
Independent sample T-Test for gender differences (N=150)

Measures	Male		Female				95%CI		
	M	SD	M	SD	T (148)	P	LL	UL	Cohen's d
DS14	34.50	10.41	35.53	10.28	−.60	.55	−4.44	2.38	0.09
KPD	25.34	8.32	24.98	8.44	.26	.79	−2.39	3.11	0.04

Note: M=Mean, SD= Standard deviation, LL= lower limit, UL= upper limit Cohen's d=effect size

The table indicates that mean differences were found to be non-significant among males and females. So, these differences cannot reach a level of significance. The table shows mean differences between males and females on type D personality and psychological distress. There was a statistically non-significant mean difference among males (M=34.50) and females (35.53).

Discussion

The aim of the study was to study the relationship between type D personality and psychological distress among heart patients.

Type D personality is measured by using the DS14 scale of Gul and Bhatti, (2009). The DS14 scale is a well-known instrument used to assess Type D personality. The alpha reliability of DS14 is quite high, ranging from .85 to .90. The reliability of the current study is .86. Psychological distress was measured using the Kessler Psychological Distress Scale (K10). The alpha reliability of K10 ranges from 0.42 to 0.74. In the current study, the reliability of K10 is .862, showing highly reliable results. As data was to be collected from government hospitals, the Urdu version of both scales was used to collect data for the assistance of study participants. Before carrying out research, permission for the Urdu version of both scales from the respective authors was obtained by mailing them, and after they gave permission to use translated versions, data collection was started. (SPSS-21) version was used to inspect the reliability of both scales.

The current study sample consisted of cardiac patients of a heterogeneous group. The sample size of the study was 150 cardiac patients, out of which 90 were males and 60 were females. Data was collected from different hospitals in Islamabad and Rawalpindi. Sample characteristics were made on various demographic variables, i.e., age, gender, economic status, employment status, and marital status.

Inter-scale correlation analysis was executed to find the relationship among two study variables, i.e., the DS14 scale for the measurement of Type D personality and the Kessler Psychological Distress Scale (K10) for the measurement of Psychological Distress among heart patients. Results manifested that there is a significant relationship between Type D Personality and Psychological Distress. This designated that

people having Type D personality are more likely to have Psychological distress. Ths studies conducted by (Campbell et al. 2017) are correlated with the current study's findings.

By the statistical analysis of correlations, the proposed hypothesis of the study was confirmed. Independent sample t-tests and mean differences were calculated for various demographic variables. Inter-scale correlation was applied to find out the association between Type D Personality and Psychological Distress among heart patients. An independent sample t-test was done to explore the gender differences.

It was hypothesized that there is a significant relationship between Type D personality and Psychological Distress among heart patients. Inter-scale correlation was used to test the current study hypothesis. A hypothesis of a significant relationship was proved between both variables of the study. Results abided with the study of Juenger et al. (2002), in which they reported that high levels of physical, functional, and emotional distress had been reported in patients suffering from 21 heart failure, resulting in negative emotions like anger, irritability, or hostility and suppressing feelings affecting quality of life in which health is a major concern. It has been observed that people suffering from psychological distress have some major symptoms, which mainly include crying, extreme anger, eating disorders, and loss of interest in daily routine, resulting in more physical distress symptoms such as migraines stomachs, tiredness, feeling at fault, helpless and hopeless, isolation friends and family, etc.

Consequently, If the aforementioned signs are not taken into account, then afterward, these all result leads to psychological distress. Also, a distressed personality causes both mental and physical illness that has a prominent effect throughout life. So, the hypothesis of the current study is supported by the results found by the inter-scale correlation analysis (see Table 4). The results of the study stipulate that there is a positive relationship between type D personality and psychological distress. Table 5 indicates that mean differences were found to be non-significant among males and females. So, these differences cannot reach the level of significance. The study findings are consistent with the results of (Mols and Denollet, 2010).

Another hypothesis of the current study is that there will be gender differences among study variables. An Independent t-test was performed to find out gender differences among the study variables of research under study. The findings of the current study revealed that there is a non-significant relationship between males and females. These results are consistent with previous literature of Svansdottir et al. (2012).

Limitations

One of the main limitations of the study was that data collection was done by the government hospitals only. It is suggested that researchers collect data from both the private and government sectors in the future. Another limitation was that the study was only limited to the distressed personality, and it had no focus on other types of personalities. Further, along with gender differences, other demographic characteristics can also be explored. Furthermore, the data was only collected from Islamabad and Rawalpindi, which may affect the generalizability of results, as the data could have been collected from the broader region.

Implications and Recommendations

Results of the current study reveal that there is a significant relationship between type D personality and psychological distress. The study also highlighted the important aspects regarding cardiac issues, and relating them with psychological distress better explains the type D personality. The study will help to understand personality dynamics. Type D personality is correspondingly the latest occurrence in the field of clinical psychology. Many of the symptoms of a distressed personality are often neglected, and the person faces depression and other mental illnesses.

Future studies can focus on the cause and effect among Type D personality and psychological distress by using the randomized sampling technique. Moreover, the sample size could be enhanced to explore the significant gender differences among heart patients further. Future research could explore interventions targeting Type D personality traits and their effectiveness in improving patient outcomes. Longitudinal studies could also provide insights into the causal pathways between Type D personality, psychological distress, and heart disease progression.

Conclusion

The current study concludes that there is a strong relationship between type D personality and psychological distress among heart patients. Current research mainly focuses on the effect of type D personality on heart patients in terms of psychological distress. The study describes the relationship between type D personality and psychological distress. Results revealed that there exists a strong significant relationship between type D personality and Psychological distress. Also, past studies have mostly been concerned with myocardial infarction patients, but the current study includes a heterogeneous group of cardiac patients. The study also reveals that there is a non-significant relationship between males and females.

References

Belay, A. S., Guangul, M. M., & Asmare, W. N. (2021). Prevalence and associated factors of psychological distress among nurses in public hospitals, Southwest, Ethiopia: A cross-sectional study design. *Ethiopian Journal of Health Sciences*, *31*(6). https://doi.org/10.21203/rs.3.rs-48073/v1

Brotman, D. J., Golden, S. H., & Wittstein, I. S. (2007). The cardiovascular toll of stress. *The Lancet*, *370*(9592), 1089–1100. https://doi.org/10.1016/s0140-6736(07)61305-1

Campbell, K. A., Madva, E. N., Villegas, A. C., Beale, E. E., Beach, S. R., Wasfy, J. H., Albanese, A. M., & Huffman, J. C. (2017). Non-cardiac Chest Pain: A Review for the Consultation-Liaison Psychiatrist. *Psychosomatics*, *58*(3), 252–265. https://doi.org/10.1016/j.psym.2016.12.003

Denollet, J. (2000). Type D personality. *Journal of Psychosomatic Research*, *49*(4), 255–266. https://doi.org/10.1016/s0022-3999(00)00177-x

Denollet, J. (2005). DS14: Standard Assessment of Negative Affectivity, Social Inhibition, and Type D Personality. *Psychosomatic Medicine*, *67*(1), 89–97. https://doi.org/10.1097/01.psy.0000149256.81953.49

Denollet, J., & Conraads, V. M. (2011). Type D personality and vulnerability to adverse outcomes in heart disease. *Cleveland Clinic Journal of Medicine*, *78*(Suppl_1), S13–S19. https://doi.org/10.3949/ccjm.78.s1.02

Denollet, J., Schiffer, A. A., & Spek, V. (2010). A general propensity to psychological distress affects cardiovascular outcomes. *Circulation: Cardiovascular Quality and Outcomes*, *3*(5), 546-557. https://doi.org/10.1161/circoutcomes.109.934406

Gaidai, O., Cao, Y., & Loginov, S. (2023). Global Cardiovascular Diseases Death Rate Prediction. *Current Problems in Cardiology*, *48*(5), 101622. https://doi.org/10.1016/j.cpcardiol.2023.101622

Ghafoor, S., Sitwat, A., & Kausar, A. (2016). *Translation of Kessler psychological distress scale-K10.* (Unpublished master's thesis). Centre for Clinical Psychology, University of the Punjab, Lahore Pakistan.

Giuliani, M., Santagostino Baldi, G., Capra, N., Bonomi, A., Marzorati, C., Sebri, V., Guiddi, P., Montorsi, P., Pravettoni, G., & Trabattoni, D. (2024). The heart-mind relationship in women cardiovascular primary prevention: The role of depression, anxiety, distress and Type-D personality in the 10-years cardiovascular risk evaluation. *Frontiers in Cardiovascular Medicine*, *11*. https://doi.org/10.3389/fcvm.2024.1308337

Gul, I., & Bhatti, R. A. (2009). Type D Personality, Psychological Distress, and Quality of Life in MI patients. In *3rd International Conference on Bioinformatics and Biomedical Engineering: ICBBE*, 1-7. IEEE.

Juenger, J. (2002). Health related quality of life in patients with congestive heart failure: comparison with other chronic diseases and relation to functional variables. *Heart*, *87*(3), 235–241. https://doi.org/10.1136/heart.87.3.235

Lin, I-Mei., Wang, S.-Y., Chu, I-Hua., Lu, Y.-H., Lee, C.-S., Lin, T.-H., & Fan, S.-Y. (2016). The Association of Type D personality with Heart Rate Variability and Lipid Profiles Among Patients with Coronary Artery Disease. *International Journal of Behavioral Medicine*, *24*(1), 101–109. https://doi.org/10.1007/s12529-016-9571-x

Mols, F., & Denollet, J. (2010). Type D personality in the general population: a systematic review of health status, mechanisms of disease, and work-related problems. *Health and Quality of Life Outcomes*, *8*(1), 9. https://doi.org/10.1186/1477-7525-8-9

Murphy, B., Grande, M. L., Alvarenga, M., Worcester, M., & Jackson, A. (2020). Anxiety and Depression After a Cardiac Event: Prevalence and Predictors. *Frontiers in Psychology*, *10*(10). https://doi.org/10.3389/fpsyg.2019.03010

Pelle, A. J., Ruud A.M. Erdman, Ron, Spiering, M., Marten Kazemier, & Pedersen, S. S. (2008). Type D Patients Report Poorer Health Status Prior to and After Cardiac Rehabilitation Compared to Non-Type D Patients. *Annals of Behavioral Medicine*, *36*(2), 167–175. https://doi.org/10.1007/s12160-008-9057-4

Pelle, A. J., Schiffer, A. A., Smith, O. R., Widdershoven, J. W., & Denollet, J. (2010). Inadequate consultation behavior modulates the relationship between Type D personality and impaired health status in chronic heart failure. *International Journal of Cardiology*, *142*(1), 65–71. https://doi.org/10.1016/j.ijcard.2008.12.086

Perros, P., Nagy, E. V., Papini, E., Abad-Madroñero, J., Lakwijk, P., Poots, A. J., Mols, F., & Hegedüs, L. (2024). Hypothyroidism and Type D Personality: Results From E-MPATHY, a Cross-sectional International Online Patient Survey. *The Journal of Clinical Endocrinology and Metabolism/Journal of Clinical Endocrinology & Metabolism*. https://doi.org/10.1210/clinem/dgae140

Rosengren, A., Hawken, S., Ôunpuu, S., Sliwa, K., Zubaid, M., Almahmeed, W. A., Blackett, K. N., Sitthi-amorn, C., Sato, H., & Yusuf, S. (2004). Association of psychosocial risk factors with risk of acute myocardial infarction in 11 119 cases and 13 648 controls from 52 countries (the INTERHEART study): case-control study. *The Lancet*, *364*(9438), 953–962. https://doi.org/10.1016/s0140-6736(04)17019-0

Stafford, L., Berk, M., Reddy, P., & Jackson, H. J. (2007). Comorbid depression and health-related quality of life in patients with coronary artery disease. *Journal of Psychosomatic Research*, *62*(4), 401–410. https://doi.org/10.1016/j.jpsychores.2006.12.009

Svansdottir, E., van den Broek, K. C., Karlsson, H. D., Gudnason, T., & Denollet, J. (2012). Type D personality is associated with impaired psychological status and unhealthy lifestyle in Icelandic cardiac patients: A cross-sectional study. *BMC Public Health*, *12*(1). https://doi.org/10.1186/1471-2458-12-42

Thombs, B. D., de Jonge, P., Coyne, J. C., Whooley, M. A., Frasure-Smith, N., Mitchell, A. J., Zuidersma, M., Eze-Nliam, C., Lima, B. B., Smith, C. G., Soderlund, K., & Ziegelstein, R. C. (2008). Depression screening and patient outcomes in cardiovascular care: a systematic review. *JAMA*, *300*(18), 2161. https://doi.org/10.1001/jama.2008.667

Tuman, T. C. (2022). The effect of type D personality on anxiety, depression and fear of COVID-19 disease in healthcare workers. *Archives of Environmental & Occupational Health*, *77*(3), 1–8. https://doi.org/10.1080/19338244.2021.1952152

Xu, L., Zhai, X., Shi, D., & Zhang, Y. (2024). Depression and coronary heart disease: Mechanisms, interventions, and treatments. *Frontiers in Psychiatry*, *15*. https://doi.org/10.3389/fpsyt.2024.1328048